

94. *DAPHNELLA SANDWICENSIS*.

Shell ovate; spire short, smooth or obsoletely striated, slightly granulose at the sutures; aperture long, open, base subtruncate, white, stained with chestnut-brown; body-whorl ornamented with reticulated lines of same colour; apex reddish brown.

95. *DAPHNELLA MACULOSA*.

Shell elongate fusiform, transversely and longitudinally finely striated, giving the surface a granulose appearance; aperture long; base subtruncate. Colour white, ornamented with broad, interrupted longitudinal lines of a reddish brown.

7. CONTRIBUTIONS TO A KNOWLEDGE OF THE REPTILES OF THE HIMALAYA MOUNTAINS. BY DR. ALBERT GÜNTHER.

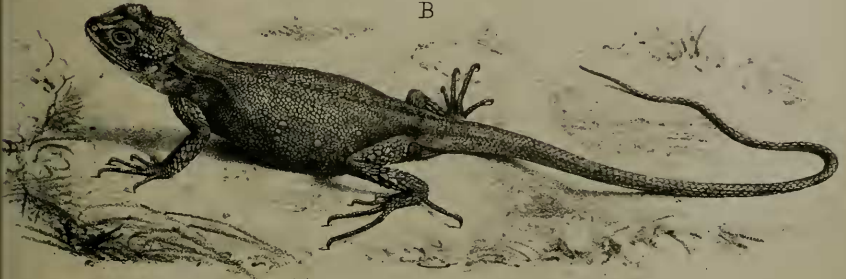
(Reptilia, Plates XXV., XXVI., XXVII., XXVIII.)

The following paper has been suggested by a collection of Reptiles made by MM. Hermann, Adolphe and Robert von Schlagintweit during their scientific mission to India and High Asia from 1854 to 1858, and submitted by those gentlemen to my examination. The value of the collection is highly increased by very accurate statements of the localities and altitudes at which each specimen was obtained, and which were kindly communicated to me for this paper. This is the first information of the kind we have received on the Reptiles of the Himalayas, and it is of the utmost importance, since it not only augments our knowledge of the vertical distribution of these animals, but embraces a larger number of facts, respecting the altitudes at which species of reptiles are known to exist in the different mountainous systems of the globe, than the whole of our previous information on the subject. I, however, have thought it advisable to take this opportunity of giving at once a complete list of the Reptiles known to inhabit the Himalayas, and to collect also those notes referring to them, which, if deficient in statements of the altitudes, yet give much information as to their horizontal distribution. In doing this, I have gathered my information from British collections and publications only, not finding the slightest data on the subject in foreign works treating of the physical history of these mountains. One of the chief resources for this list has been a collection made by Dr. J. Hooker in Sikkim and Khasia, partly described by Dr. J. E. Gray (Ann. and Mag. Nat. Hist. 1853, xii. p. 386), and partly by myself in my Catalogue of Colubrine Snakes. Finding a great congruity between the species obtained in the Khasia Hills and those collected by MM. von Schlagintweit at considerable altitudes in the Himalayas, I have not hesitated to admit the former into the list, although every other information on their habitat is wanting. But I have not admitted the numerous species mentioned by Dr. Cantor and others as being found in Assam; they were evidently col-

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A. BARYCEPHALUS SYKESII, Gthr. B. TIARIS ELLIOTTI, Gthr.
C. TILIQUA SCHLEGELII, Gthr.

W West, Imp.



lected in the plains of this country; and even those said to have been obtained from hills (their height is not stated) belong entirely to the lowland fauna. On the Reptiles inhabiting High Assam we have no information whatever. Another contribution to the Himalaya fauna has been given by Mr. Blyth in Journ. As. Soc. Beng. vols. xxii. and xxiii.*, containing an account of several Reptiles from Nepal and Sikkim. Some of the latter have been found by Capt. Sherwill at Darjeeling, which locality is, as we know, 7100 feet above the level of the sea. Finally, Mr. Hodgson has sent numerous specimens from Nepal to the British Museum, but it is much to be regretted that he has not paid the same attention to their altitudinal distribution as he has done in the higher classes of Vertebrata; and I have been obliged to make a cautious selection from among the species sent by him, in order not to admit those which, although from Nepal, belong exclusively to the lowland fauna.

The collection of Messrs. von Schlagintweit is composed of 118 specimens, nearly all of which are in the best state of preservation; they have been transferred to the British Museum, together with the large Collection of the East India Company. A few only were collected in Ceylon, at Calcutta and Kurrachee, and are not mentioned in this paper, with the exception of one Snake from the latter place, which, with no other difference than a few very slight variations in the small additional shields of the head, so completely agrees with *Zamenis cliffordii* as to leave no doubt as to the identity of both. This species therefore appears to be found along all the coasts of North Africa through Egypt, and to extend to the banks of the Indus!

I shall first give the descriptions of the new species †.

I. *Descriptions of the New Species.*

BARYCEPHALUS ‡, Gthr.

Head, body, and tail rather depressed, the latter tapering; tympanum circular; throat with a deep transverse fold; præanal or femoral pores none; head covered above with very small shields; back with very small square, keeled, and imbricate scales; sides granular, with scattered spines; belly with small square plates in transverse series; extremities and tail with oblique transverse series of strongly keeled scales; teeth laterally compressed, triangular, without lobes.

This genus is to be referred to the family of *Agamidae*.

* I am very sorry not to have had earlier knowledge of this paper, which contains valuable detailed descriptions of numerous species. So much cannot be said of a herpetological paper by another author in the twenty-second volume of the Asiatic Journal, which, in its present shape, is of no value whatever to science.

† The discoverers of these Reptiles have requested me to dedicate the new species to gentlemen who have taken a particular interest in their travels.

‡ From *βαρυκέφαλος*, with depressed head.

BARYCEPHALUS SYKESII, Gthr. (Pl. XXV. fig. A.)

Diagnosis.—Temple, sides of the throat and trunk, and the posterior part of the hind legs with scattered spines; a transverse series in the middle of the belly contains about fifty shields. Upper parts dusky, variegated and speckled with black, the lower parts whitish; throat reticulated with greenish.

The following specimens are in the Collection :—

- a. Adult. Simla, Himalaya; 2500 feet above level of the sea.
- b. Half-grown. Simla, Himalaya; 7200 feet above level of sea.
- c. Adult. Gärhvål, Himalaya; 8200 feet above level of the sea.
- d. Young. Balti, Tibet; 6100 feet above level of the sea.
- e. Half-grown. Ladak, Tibet; 15,250 feet above level of the sea.

Description.—The *head* is rather depressed and flat, with the canthus rostralis distinct, and with the snout of moderate length; it is covered above with numerous very small shields; there is a shield in the middle of the occipital region, which is rather larger than the others, but it is not present in all the specimens; a series of slightly keeled shields runs along the median line of the snout. The width of the space between the bony orbits is one-half that of the upper eyelid. The rostral shield is low, twice as broad as high; there are twelve upper labials. The nostril is in a single shield, which is situated between the canthus rostralis and the first upper labial. The loreal region is concave, and covered with minute shields. The median shield of the lower jaw is subpentagonal, and longer than broad; the lower labials are eleven in number, and higher than those of the upper lip; several other series of very small shields run parallel to that of the labials, the remainder of the throat being covered with minute granules. A low spiny crest proceeds from below the eye to the tympanum, the anterior circumference of which also is provided with spinous scales; several other groups of spines are between the tympanum and the fold of the throat, and on the sides of the neck, which is exceedingly finely granulated.

The *trunk* is depressed and flattened; the back is covered with small imbricate scales, each being provided with a strong keel; they gradually pass into the granulations of the sides, which, however, are intermixed with small scattered spines. The belly is covered with smooth square shields, arranged in transverse series; they are so small that I count fifty of them in one of the series in the middle of the belly.

The *tail* is considerably depressed at the base, assumes gradually a more conical form, and tapers posteriorly into a fine point; it is verticillated. The scales form rings, are quadrangular and strongly keeled, each keel terminating posteriorly in a small spine. The scales which are the largest and provided with the strongest keels are those on the anterior and superior parts of the extremities; the scales round the joints and on the posterior and inferior sides are smaller, and smooth. The fore leg reaches to the loin, if laid backwards; the third and fourth fingers are the longest, and equal in

length; the second and fifth are shorter, and equal each other in length; the first is the shortest. All the fingers and toes are slightly compressed and armed with strong claws. The hind leg reaches to the end of the snout, if laid forwards; the fourth toe is the longest, somewhat longer than the third and fifth, which are nearly equal; the second is considerably shorter, and the first is the shortest.

The ground-colour of the upper parts is dusky-brown or greenish-brown, the back being irregularly speckled with black; two of the specimens exhibit also some lighter, indistinct spots; the lower parts are whitish, the throat is reticulated with greenish; one specimen has the breast dotted with bluish-green.

	inches.	lines.
Total length	11	0
Length of the head (to the hinder edge of the tympanum)	1	0 $\frac{1}{2}$
Greatest width of the head	0	9
Length of the trunk (to the anus)	3	0
— of the tail	7	0
— of the humerus	0	11
— of the fore-arm	0	8 $\frac{1}{2}$
— of the fourth finger	0	7
— of the first finger	0	4 $\frac{1}{2}$
— of the entire fore extremity	2	6
— of the femur	1	1
— of the lower leg	1	0
— of the foot	1	3
— of the fourth toe	0	10
— of the fifth toe	0	8
— of the first toe	0	4 $\frac{1}{2}$
— of the entire hinder extremity	3	4

This genus has a remarkable resemblance in many points to *Microphractus** (*Hopluridæ*), from the Andes; but there is a generic difference in the dentition. The species is named in honour of Colonel Sykes.

TIARIS ELLIOTTI, Gthr. (Pl. XXV. fig. B.)

Diagnosis.—Crest of the nape and of the back exceedingly low, formed by a series of larger keeled scales; neither a longitudinal nor a transverse gular fold; a very small detached tubercle behind the margin of the upper eyelid, which is not armed; a series of tubercles from above the tympanum, bent towards the nuchal crest. Above brownish, uniform or varied with darker.

Hab. Sikkim, Himalaya. One adult female specimen procured in an altitude of 9200 feet is in the Collection. Three other specimens, from the same country, have been presented to the British Museum by Dr. J. Hooker.

Description.—The head is rather high, with a sharp canthus rostralis, short snout, and convex upper eyelids; it is covered with

* Cfr. Proceed. Zool. Soc. 1859, p. 90.

numerous slightly keeled scales, and one situated in the middle of the occiput appears to be rather larger than the others; the width of the space between the bony orbits is very narrow; the canthus rostralis and the margin of the upper eyelid form one continuous sharp edge. The rostral shield is very low, like the upper labials, which are five in number. The nostril is very small, in a single shield, which is situated between the canthus rostralis and the first labial. The loreal region is a little concave, and covered with small irregular shields. The median shield of the lower jaw is subtriangular and longer than broad; there are five lower labials on each side, the remainder of the throat being covered with imbricate and keeled scales. There is a small conical tubercle behind, and detached from the orbital edge; another similar tubercle is on each side of the throat below the tympanum; a series of tubercles proceeds from above the tympanum, and is bent inwards to the nuchal ridge. The tympanum itself is small and subcircular. There is no fold across the throat, but a transverse band of rather smaller scales.

The *trunk* is rounded, in the female depressed; a series of larger, keeled scales runs along the middle of the neck and back to the base of the tail, and forms a sort of dorsal crest; the back and the sides are covered with small scales of unequal size and quite irregularly arranged; they are intermixed with scattered, considerably larger scales, and these are distinctly keeled. The scales of the belly are imbricate, rhombic, more equal in size and more regularly arranged and slightly keeled; the præanal scales are like those of the belly; præanal pores none.

The *tail* is very long, slender, rounded at the base, and covered on all sides with rhombic, keeled, imbricate scales; it is not verticillated.

The upper parts of the extremities are covered with very large and strongly keeled scales; some scales on the hinder side of the femur have even two or three keels. The fore leg reaches to the loin, if laid backwards; the hind leg, if laid forwards, nearly to the end of the snout. The fingers and toes are armed with strong claws, and have the usual relative length. There are no femoral pores.

The ground-colour of the upper parts is brownish; uniform in the females, variegated with darker in the males. Some of the large scales of the back appear to have been iridescent during life. The lower parts are uniform dull-yellowish.

	inches.	lines.
Total length	6	7½
Length of the head (to the tympanum) . . .	0	6½
Greatest width of the head	0	5
Length of the trunk (to the anus)	1	7
— of the tail	4	6
— of the humerus	0	4
— of the fore-arm	0	4
— of the fourth finger	0	4½
— of the first finger	0	1½
— of the entire fore extremity	1	0

	inches. lines.	
Length of the femur	0	6 $\frac{1}{3}$
——— of the lower leg	0	5 $\frac{1}{3}$
——— of the foot	0	3
——— of the fourth toe.....	0	6
——— of the fifth toe.....	0	4
——— of the first toe.....	0	2
——— of the entire hinder extremity	1	9

The species is dedicated to Walter Elliott, Esq., Member of the Council of Madras.

TILQUA SCHLEGELII, Gthr. (Pl. XXV. fig. C.)

Diagnosis.—Uniform black. Scales rather large, smooth, striated, not keeled, in four or five longitudinal series on the back. Four præanal shields, the two middle ones being the larger; a series of broad shields along the lower side of the tail. Ear-opening small, deep, round, with smooth margins.

Hab. Sikkim. One specimen, apparently not full-grown, has been found at an altitude of 8930 feet.

Description.—This species does not differ in general habit from the other *Tiliquæ*. Its snout is of moderate extent, and not produced. The series of shields covering the upper surface of the head is as follows:—1, the rostral shield is rounded; 2, the anterior frontal is single, subquadrangular, broader than long; 3, a pair of posterior frontals, which are not in contact with each other; 4, the vertical shield is quadrangular, with the anterior angle obtuse and the posterior very acute, and with the two anterior sides much shorter than the two posterior ones; the shield reaches backwards to the level of the pupil. 5. There are five superciliary shields on each side of the vertical; 6, five occipital shields, viz. an anterior pair, a single central one, and a posterior pair; the anterior pair form a suture with the vertical, separating it from the central occipital. The latter is quadrangular, similar in form to the vertical, but much shorter, so that the anterior pair of its sides are not much longer than the posterior. The anterior pair of the occipitals form together with the central shield a perfect square. The posterior pair is obliquely situated, subelliptical in form, and larger than any of the other occipitals; the inner side of those shields is in contact with an anterior and with the central occipital.

The nostril is in a single shield between the first labial and the anterior frontal; there are three shields between nostril and eye, covering the loreal region. Seven upper labials, the fifth of which is the largest, and extending upwards to the eyelid. The posterior part of the orbit is formed by three small shields, behind which are some large temporals. The median lower labial is broader than long, truncated posteriorly, forming a straight transverse suture with another single broad shield situated immediately behind the median labial. There are five narrow lower labials, with an interior series of five other much larger shields; the remainder of the throat

is covered with scales like the belly. The opening of the ear is small, round, and deep.

The scales are finely striated, without keels, and rather large on the back, whilst those on the belly are of moderate size, and those on the sides rather small. I count in the middle of the trunk five longitudinal series on the back, seven on each side, and six on the belly; so that that part of the body is surrounded by twenty-five series. There are four præanal shields, the middle pair being considerably the largest.

The greater portion of the tail is broken off; a band of broad shields begins to cover its lower side at a short distance from its origin; the tail is surrounded by eight series of scales, which exhibit no keel whatever. The tail itself is rounded, not compressed, and tapering.

The extremities are covered with scales similar to those of the body; the fore extremity reaches to the anterior margin of the eye, if laid forwards; the third and fourth fingers are the longest, and nearly equal; then follow the second, the fifth and the first. The length of the hinder extremity is rather more than one-half that of the trunk; the fourth toe is the longest; the third and fifth are equal in length, and the first is shorter than the second. All the fingers and toes are slightly compressed and well armed with claws.

The upper parts are uniform black, the lower ones blackish.

Palatine teeth none.

	inches.	lines.
Total length	4	4
Length of the head (to the tympanum)	0	4½
Greatest width of the head	0	3
Length of the trunk (to the vent)	1	6
—— of the tail (restored)	2	6
—— of the fore extremity	0	6
—— of the fourth finger	0	1½
—— of the hinder extremity	0	9½
—— of the fourth toe	0	3

The species is called after Prof. H. Schlegel of Leyden.

ABLABES RAPPII, Gthr. (Pl. XXVI. fig. B.)

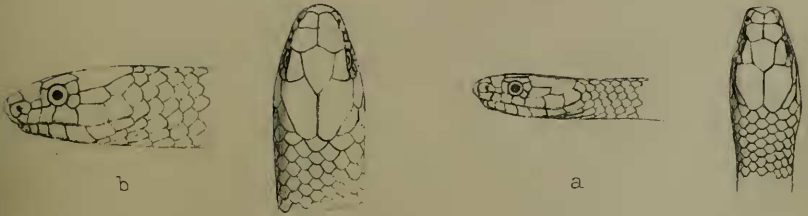
Diagnosis.—Scales in fifteen rows; six upper labials, the third and fourth of which enter the orbit: Above uniform blackish; below yellowish.

Hab. Sikkim (5340 feet above the level of the sea). Another specimen, sent by Mr. Hodgson from Nepal, and rather injured, is in the Collection of the British Museum.

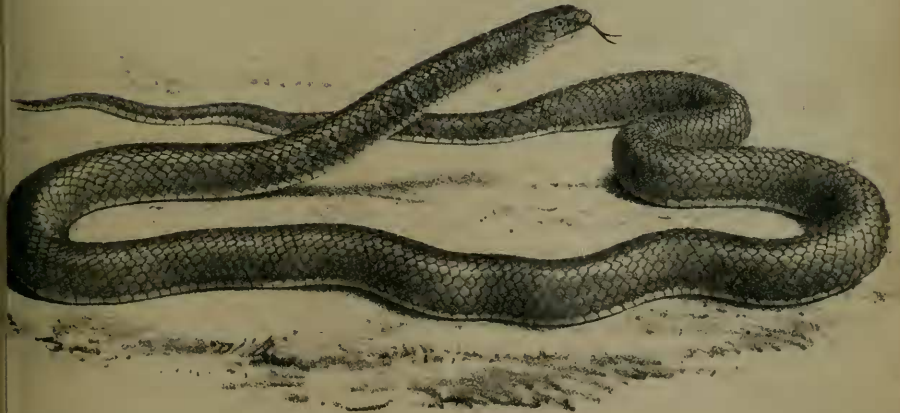
Description.—The head is of moderate length, and continuous with the neck; the body and tail are rather slender. The rostral is a little broader than high, rounded superiorly, and reaching to the upper surface of the head. The anterior frontals are smaller than the posterior ones, which are bent downwards to the side of the head. The vertical is not twice as long as broad, and has the posterior



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A a. ABLABES OWENII, Gthr
B b. _____ RAPPII, Gthr.



angle pointed in the specimen from Sikkim, and obtuse in those from Nepal. The occipitals are of moderate extent. The nostril is between two shields; one loreal, one anterior and two posterior oculars; six upper labials, the third and fourth of which enter the orbit; two temporals, one behind the other, the anterior elongate; seven lower labials, those of the first pair forming a suture behind the triangular median shield; two pairs of chin-shields, those of the anterior pair being the largest.

The scales are rhombic, perfectly smooth, in fifteen rows in the middle of the body; anals and subcaudals bifid.

Sikkim specimen: ventrals 191, subcaudals 60.

Nepalese specimen: ventrals 198.

The colour has been described above. The teeth are small, equal, smooth. The specimen from Sikkim is an adult female with mature eggs in the oviduct; its total length is $16\frac{1}{2}$ inches, the length of the head $4\frac{1}{2}$ lines, that of the tail $3\frac{1}{2}$ inches.

The species is called after Prof. von Rapp, of Tübingen.

ABLABES OWENII, Gthr. (Pl. XXVI. fig. A.)

Diagnosis.—Scales in fifteen rows; six upper labials, the third and fourth of which enter the orbit. Greyish-brown, with a broad black collar and many black transverse spots on the anterior part of the body.

Hab. Sikkim, Himalaya (10,200 feet above the level of the sea).

Description.—The head is of moderate length, flat and depressed, not distinct from the neck; the snout is rather broad; the rostral much broader than high, and not extending backwards on the upper surface of the head. The frontals are broader than long, the anterior ones half the size of the posterior, which are bent downwards on the side of the head. The vertical is pentagonal, with the anterior margin convex and equal in length to the lateral one, and with the posterior angle pointed. The occipitals are of moderate extent and rounded posteriorly. The nostril is between two shields. One loreal, one anterior, and two posterior oculars; six upper labials. There are two narrow temporal shields of nearly equal length, one behind the other. Six lower labials, those of the first pair forming a suture together behind the median shield, which is triangular and longer than broad. The two pairs of chin-shields are of equal size. The trunk is rounded, of moderate length, surrounded by fifteen rows of rhombic, perfectly smooth scales. Ventrals 200, anal bifid; subcaudals 59. The upper parts are greyish-brown; there is a broad black collar immediately behind the occipitals, and not extending on to the abdominal side; the anterior portion of the trunk exhibits many narrow and rather irregular black transverse spots, gradually disappearing towards the middle of the length of the body. The lower parts are uniform yellowish.

	inches.	lines.
Total length	7	9
Length of the head	0	$3\frac{1}{2}$
— of the tail	1	4

This species is called in honour of Prof. Richard Owen.

SPILOTES HODGSONII, Gthr. (Pl. XXVII.)

Diagnosis.—Body elongate, slightly compressed. Scales indistinctly keeled, in twenty-three rows; the fifth upper labial shield hardly reaching upwards to the posterior margin of the orbit; eight upper labials, two posterior oculars, anal bifid. Uniform olive, the skin between the scales black.

Hab. Ladak, Tibet (15,200 feet above the level of the sea). Two other specimens have been sent by Mr. Hodgson from Nepal.

Description.—This species is closely allied to *Spilotes melanurus*, Schleg., and *Sp. reticularis*, Cant., which, however, have considerably larger scales, in nineteen, and sometimes in twenty-one series, and exhibit a different coloration. *Sp. melanurus* has the sixth (fifth) upper labial differently shaped; but in all have the shields of the head the same tendency to irregularities, two or three being often united. This is the case in the Nepalese specimens of the present species, whilst that from Tibet has all distinctly separated. The form of the head and of its shields is exactly the same as in the other species mentioned. The ante-ocular reaches to the upper surface of the head, without touching the vertical. The scales are small, especially those on the neck, where they are arranged in twenty-three rows, as in the middle of the body. Those of the dorsal series are indistinctly keeled.

	Ventrals.	Anal.	Caudals.
Tibetan specimen	256	1/1	90
Nepalese specimen, no. 1	226	1/1	79
Nepalese specimen, no. 2	233	1/1	85

The colour of the upper parts is uniform olive, the skin between the scales being black; the belly is whitish, and the margin of each ventral shield blackish on each side. The tail is coloured like the body.

	inches. lines.	
Length of the head	1	2
— of the tail	11	0
Total length.	51	0

This Snake is called after B. H. Hodgson, Esq.

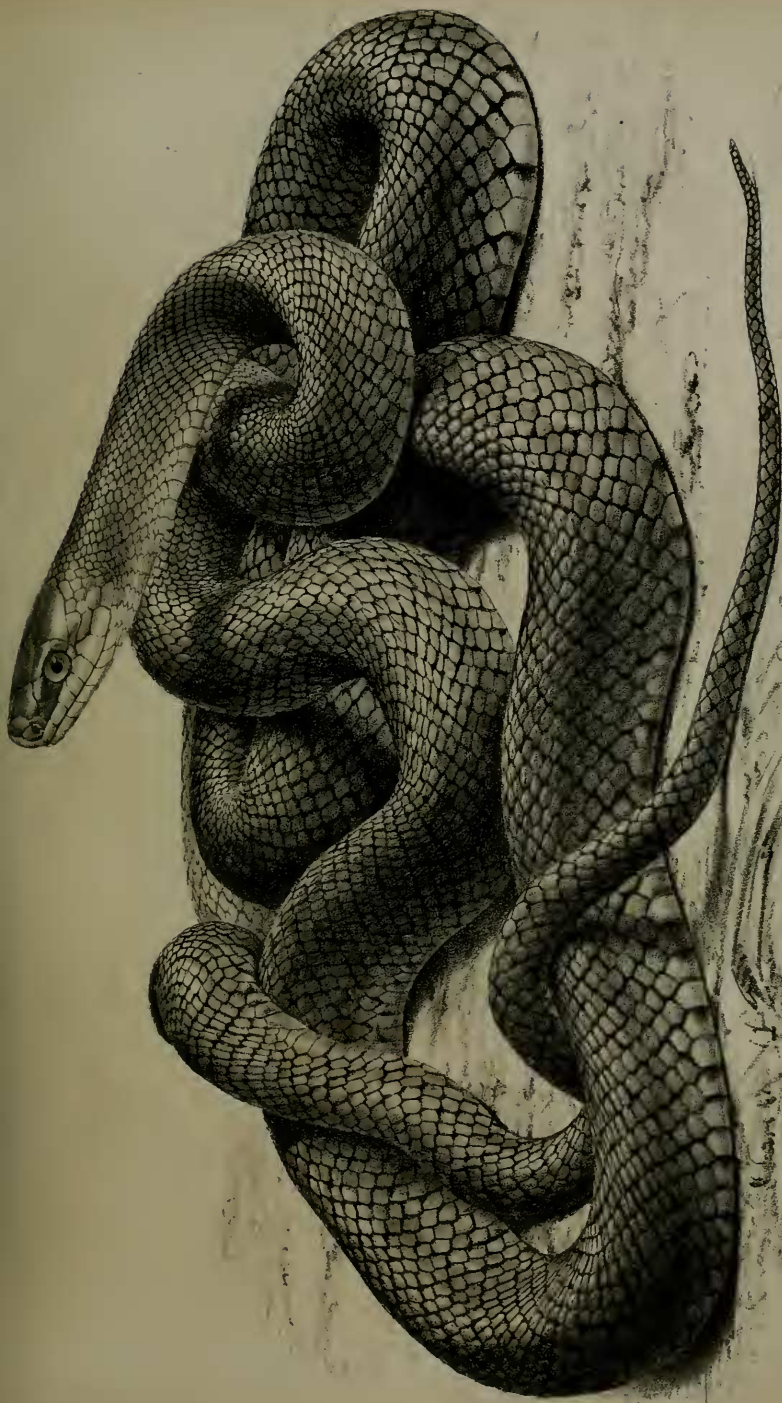
HERPETOREAS, Gthr.

Diagnosis.—The posterior maxillary tooth longest, in a continuous series with the anterior ones. Body and tail slender, compressed. Two nasals, one loreal, one anterior, two posterior oculars. Scales moderately elongate, keeled, in nineteen rows. Eye of moderate size.

This genus is to be referred to the family of the *Dryadidae*, and is distinguished from the other genera by its dentition.

HERPETOREAS SIEBOLDII, Gthr.

Diagnosis.—Vertical shield five-sided, with the lateral margins nearly parallel, and with the posterior sides very short. Scales in





nineteen rows, slightly keeled. Above uniform greenish-brown; below yellowish, with a darker stripe on each side, formed by short streaks.

Hab. Sikkim, Himalaya (7500 feet above the level of the sea).

Description.—Although the head of the single specimen sent is somewhat injured, and does not admit of a fully detailed description, I do not hesitate to found a new genus and species on it, as those parts which are in a better state of preservation exhibit peculiarities sufficient for its recognition. From some few remarks made by Mr. Blyth in Journ. As. Soc. 1855, p. 292, it would appear that he also has seen this Snake. He, however, describes it as having seventeen rows, and applies to it the name of *Herpetodryas helena*, Daud., which is entirely incorrect, the Snake of Daudin being a common species from Ceylon with twenty-seven rows of scales (*Cynophis helena*).

The head is somewhat elongate, rounded in front and flat above. The rostral shield is broader than high, and rounded superiorly; the anterior frontals are pentagonal, one-half the size of the posterior, which are bent downwards on the side of the head. The vertical is pentagonal, much broader than the superciliary, and not quite twice as long as broad; its lateral margins are nearly parallel, the posterior ones very short, and meeting at a right angle. The occipitals are slightly elongate and rather narrow, subtruncated posteriorly. Nostril between two plates; one loreal, one anterior, and two posterior oculars; eight upper labials, the third, fourth, and fifth of which enter the orbit. There appear to be five temporal shields. Ten lower labials, those of the first pair being in contact with each other, behind the median shield, which has the posterior margin obtusely rounded. Two pairs of chin-shields, the anterior being the smaller.

The trunk is compressed, especially towards the tail, and slender; it is surrounded by nineteen series of scales, those of the back being slightly keeled; they are rather elongate, and assume a rhombic form towards the tail. The ventral and subcaudal plates are bent upwards to the sides, but not keeled. Ventrals 216, anal bifid, caudals 90.

The two posterior teeth are twice as long as the anteriors, with which they form a continuous series; they are not grooved. The upper parts are uniform greenish-brown, the lower ones yellowish; the ventrals have an elongate spot on each side. Total length 3 feet 1 inch; length of the head 10 lines, of the tail 9 inches.

This species is called after Prof. von Siebold of Munich.

RANA LIEBIGII, Gthr. (Pl. XXVIII. fig. A.)

Diagnosis.—Tympanum hidden; a strong tubercular fold from the eye to the axil, another along each side of the back; sacral region tubercular. Head broad; muzzle obtuse, with the canthus rostralis flattened. A slight groove across the occiput, uniting both the posterior angles of the eye-lids. Vomerine teeth in two oblique series, convergent posteriorly. The fifth toe not quite one-third the

length of the third and fourth. Metatarsus with one tubercle. Tips of the fingers and toes truncated. (Brown, a dark streak along the canthus rostralis; the hinder side of the thigh with white spots; the lower parts brown, or whitish marbled with brown.

Hab. One specimen, found by Messrs. von Schlagintweit in Sikim (3800 feet); another from Nepal is in the Collection of the British Museum.

Description.—The upper surface of the head is flat, with indistinct canthus rostralis; the loreal region is oblique, the snout short and broad, the distance between the angles of the mouth being very much more than the length of the head. The tympanum is hidden by the skin, but its outlines become somewhat visible in exsiccated specimens only; the species may be readily distinguished by this character. The nostril is situated midway between the eye and the end of the snout. The eye is of moderate size, prominent above the level of the crown, and with a slight groove behind. The space between the eyes is as wide as an upper eyelid. The inner nostrils are a rather narrow transverse cleft, and in size about equal to the openings of the eustachian tubes. The lower jaw without prominences; there are no vocal sacs, both the specimens being females. Two tubercular folds arise from the eye; the stronger one running above the tympanum to the axil, the other along the side of the back towards the loin; the back and the belly are smooth; the sacral region, the sides of the body, and the upper parts of the thigh are more or less covered with broad tubercles. The toes and fingers are truncated or ending in small knobs. The former are webbed to their extremities, the membrane being slightly emarginate. The fourth toe is one-fourth longer than the third, which is rather longer than the fifth. One metatarsal tubercle. The colours have been stated above.

	inches.	lines.
Length of head and body	3	9
——— of the head	1	2
Width of the head	1	5
Length of the fore leg	2	1
——— of the hind leg	6	0
——— of the fifth toe	1	4
——— of the fourth toe	1	8
——— of the third toe	1	5

This species is called after Dr. von Liebig, jun.

DICROGLOSSUS, Gthr.

Fingers free, toes broadly webbed; tongue rather elongate, deeply notched behind; vomerine teeth none; eustachian tubes moderate, tympanum indistinct; vocal sacs of the male external and lateral.

This genus is to be referred to the *Ranidæ*, and differs from *Oxyglossus* in the shape of the tongue.

DICROGLOSSUS ADOLFI, Gthr. (Pl. XXVIII. fig. B.)

Diagnosis.—Skin smooth or warty; toes webbed to their tips by



B.



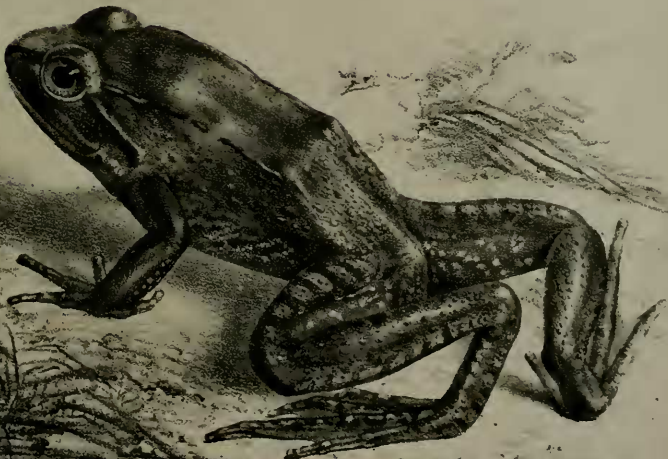
b



a



A





a very extensible membrane; a cylindrical tubercle at the metatarsus, very much like the rudiment of a sixth toe. Above greenish or greenish-brown, uniform or spotted with darker; belly with dark specks. Size of *Bombinator igneus*.

Hab. Kulu and Simla, Himalaya (2400–4200 feet above the level of the sea).

Description.—In habit and size somewhat similar to *Bombinator igneus*, but with the snout more pointed. The skin is in some specimens warty, in others smooth. The tympanum is rather indistinct, and not quite of the size of the eye. The inner nostrils are small and rather distant from each other, the openings of the eustachian tubes larger. The extremities are of moderate length; the fingers quite free: the third is the longest; the first is very little longer than the second and fourth, which are equal in length. The structure of the hind foot is similar to that in *Oxyglossus*; but the tubercle of the metatarsus is very much like a rudiment of a sixth toe. The fourth toe is one-fourth longer than the fifth. The species varies considerably in coloration, and the most constant characters appear to be brownish specks on all or some of the lower parts, and a brownish streak on the hinder side of the thigh.

	inches.	lines.
Length of the head and body	1	7
——— of the fore leg	0	10
——— of the hind leg	2	4

I have dedicated this species to the memory of the late Adolphe von Schlagintweit.

II. List of Himalayan Reptiles, with Remarks on their Horizontal Distribution.

Those species which, although they extend into the mountainous regions, are not peculiar to the Himalaya fauna, are marked with an asterisk.

CHELONIÆ.

1. EMYDA PUNCTATA, Lacép.

Found by MM. von Schlagintweit in Sikkim.

SAURIA.

*1. EMPAGUSIA FLAVESCENS, Gray, Catal. Liz.

Sent by Mr. Hodgson from Nepal. I strongly suspect this species to belong to the fauna of the lowlands.

2. HINULIA INDICA, Gray, Ann. & Mag.

Found by Dr. Hooker in Sikkim, by Messrs. von Schlagintweit in Sikkim, Garhwal, Simla, Kashmir, and in Ladak, Tibet.

3. *MOCOA SIKKIMMENSIS*, Blyth, Journ. As. Soc.
Found by Capt. Sherwill in Sikkim.
4. *PLESTIODON SIKKIMMENSIS*, Gray, Ann. & Mag.
Found by Dr. Hooker in Sikkim.
- *5. *VARANUS HERALDICUS*, Gray, Catal. Liz.
Sent by Mr. Hodgson from Nepal.
6. *DOPASIA GRACILIS*, Gray, Catal. Liz. & Ann. & Mag.
Found by Dr. Hooker in the Khasia Hills.
- *7. *TILIQUA RUFESCENS*, Shaw (Gray, Catal. Liz. & Ann. & Mag.).
Found by Mr. Hodgson in Nepal, by Dr. Hooker and Messrs. v. Schlagintweit in Sikkim.
8. *TILIQUA SCHLEGELII*, Gthr.
Found by Messrs. v. Schlagintweit in Sikkim.
9. *ARGYROPHIS HORSFIELDII*, Gray, Catal. Liz.
Khasia Hills.
10. *BIANCIA NIGRA*, Gray, Ann. & Mag.
Found by Dr. Hooker and Messrs. v. Schlagintweit in Sikkim.
11. *CALOTES MARIÆ*, Gray, Catal. Liz. & Ann. & Mag.
Found by Dr. Hooker in the Khasia Hills, and by Messrs. v. Schlagintweit in Jamu, Himalaya.
12. *CALOTES TRICARINATUS*, Blyth, Journ. As. Soc. Beug. 1854, p. 650.
Found by Capt. Sherwill at Darjiling.
- *13. *CALOTES VERSICOLOR*, Daud. (Gray, Catal. Liz.).
Found by Mr. Hodgson in Nepal, and by Messrs. v. Schlagintweit in Jamu and Simla (Himalaya).
14. *CALOTES MINOR*, Gray.
Stated by Dr. Gray (Catal. Liz.) to come from the Khasia Hills; found by Messrs. v. Schlagintweit in Sikkim.
15. *TIARIS ELLIOTTI*, Gthr.
Found by Dr. Hooker and Messrs. v. Schlagintweit in Sikkim.
16. *IPALURA VARIEGATA*, Gray, Ann. & Mag.
Found by Dr. Hooker in Sikkim.

17. PHRYNOCEPHALUS TICKELII, Gray.

Found by Messrs. v. Schlagintweit in Tibet. The black bands round the tail are not always present.

*18. UROMASTIX GRISEUS, Cuv.

Found by Messrs. v. Schlagintweit in Sikkim.

19. BARYCEPHALUS SYKESII, Gthr.

Found by Messrs. v. Schlagintweit at Simla and Garhwal (Himalaya), and in Balti and Ladak (Tibet).

OPHIDIA.

1. BRACHYORRHOS TENUICEPS (*Calamaria tenuiceps*, Blyth, Journ. As. Soc. Beng. 1855, p. 288).

Found by Capt. Sherwill at Darjiling.

*2. SIMOTES RUSSELLII, Daud. (Gthr. Catal. Colubr. Snakes).

Found by Mr. Hodgson in Nepal.

*3. SIMOTES PURPURASCENS, Schleg. (var. D. & E. Gthr. Catal. Colubr. Snakes = *Coronella puncticulata*, Gray, Ann. & Mag.).

Found by Dr. Hooker in Khasia, by Messrs. v. Schlagintweit in Sikkim, and by Mr. Hodgson in Nepal.

*4. ABLABES COLLARIS (*Psammodphis collaris*, Gray, l. c.; Gthr. Catal. Col. Snakes).

Found by Dr. Hooker and Messrs. v. Schlagintweit in Khasia, and by Mr. Hodgson in Nepal.

5. ABLABES RAPPII, Gthr.

Found by Messrs. v. Schlagintweit in Sikkim.

6. ABLABES OWENII, Gthr.

Found by Messrs. v. Schlagintweit in Sikkim.

7. TRACHISCHIUM FUSCUM (*Calamaria fusca*, Blyth, Journ. As. Soc. Beng. = *Trachischium rugosum*, Gthr. Catal. Col. Sn.).

Found by Dr. Hooker, Capt. Sherwill, and Messrs. v. Schlagintweit in Sikkim; by Mr. Hodgson in Nepal.

8. TRACHISCHIUM OBSCURO-STRIATUM (*Calamaria obscuro-striata*, Blyth, Journ. As. Soc. Beng.).

Found by Messrs. v. Schlagintweit in Sikkim; described by Mr. Blyth from specimens from Rangoon.

9. XENODON MACROPHthalmus, Gthr. (Catal. Col. Sn.).

Found by Dr. Hooker in Khasia and Sikkim (4000 feet). *Tro-*
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pidonotus macrops, Blyth (Journ. As. Soc. Beng. xxiii. p. 296), found by Capt. Sherwill at Darjiling, appears to be closely allied to, if not identical with, *X. macrophthalmus*.

*10. *TROPIDONOTUS QUINCUNCIATUS*, Schleg. (Gthr. Catal. Col. Sn.).

Found by Dr. Hooker in Sikkim, by Messrs. v. Schlagintweit in the Himalaya and Cashmere. The variety *T. umbratus* has been procured by Mr. Hodgson in Nepal, and by Messrs. v. Schlagintweit in Sikkim.

*11. *TROPIDONOTUS STOLATUS*, L. (Gray, Ann. & Mag.; Gthr. Catal. Col. Sn.).

Found by Mr. Hodgson in Nepal, by Dr. Hooker in Khasia, and by Messrs. v. Schlagintweit in the Himalaya.

*12. *TROPIDONOTUS SUBMINIATUS*, Reinw. (Gthr. Catal. Col. Sn.).

Found by Dr. Hooker in Sikkim, by Messrs. v. Schlagintweit in Jamu, Himalaya.

*13. *TROPIDONOTUS CHRYSARGUS*, Boie (Gthr. Catal. Col. Sn.).
Sent by Mr. Hodgson from Nepal.

14. *TROPIDONOTUS PLATYCEPS*, Blyth, *l. c.* p. 297.

Found by Dr. Hooker in Khasia, by Capt. Sherwill and Messrs. v. Schlagintweit in Sikkim, by Mr. Hodgson in Nepal. This species has the teeth of the genus *Amphiesma*, D. & B., and varies very much in coloration according to age and sex; but it constantly shows a dark stripe through the eye, and a black vertical streak on the rostral shield. I have found the eggs of a Lizard or of another Snake in the stomach of one of the specimens.

*15. *TROPIDONOTUS CERASOGASTER*, Cant. (Gthr. Catal. Col. Sn.).

Found by Dr. Hooker in Khasia.

16. *TROPIDONOTUS (?) DIPSAS*, Blyth, *l. c.* p. 297.

Found by Capt. Sherwill at Darjiling.

17. *COLUBER CALLICEPHALUS* (*Coronella callicephala*, Gray, *l. c.*).

Found by Dr. Hooker in Khasia.

*18. *SPILOTES RADIATUS*, Reinw. (Gray, Ann. & Mag.; Blyth, Journ. As. Soc. Beng.).

Found by Dr. Hooker in Khasia, and by Capt. Sherwill in Sikkim.

*19. *SPILOTES MELANURUS*, Schleg. (Gthr. Catal. Col. Sn.).

Sent by Mr. Hodgson from Nepal.

20. *SPILOTES HODGSONII*, Gthr.

Sent by Mr. Hodgson from Nepal, and found by Messrs. v. Schlagintweit at Ladak (Tibet).

21. *SPILOTES RETICULARIS*, Cant. (Gthr. Cat. Col. Sn.).

Found by Dr. Hooker in Khasia, by Messrs. Schlagintweit in Sikkim, by Mr. Hodgson in Nepal.

*22. *CORYPHODON FASCIOLATUS*, Shaw (Blyth, Journ. As. Soc. Beng.).

Found by Capt. Sherwill at Darjiling.

*23. *CORYPHODON BLUMENBACHII*, Merr. (Gthr. Catal. Col. Sn.).

Found by Mr. Hodgson in Nepal, and by Messrs. v. Schlagintweit in Sikkim.

*24. *CORYPHODON KORROS*, Reinw. (Blyth, Journ. As. Soc. Beng.).

Found by Capt. Sherwill at Darjiling.

25. *CORYPHODON CARINATUS*, Gthr. *l. c.* = *Coluber nigro-marginatus*, Blyth, *l. c.* p. 290 = *Coluber dhumnades*, Cant.

Found by Dr. Hooker in Khasia and Sikkim, by Capt. Sherwill and Messrs. v. Schlagintweit in Sikkim, and by Mr. Hodgson in Nepal. When naming this Snake *C. carinatus*, I was well aware of its identity with *C. dhumnades*; but I intended to point out that it stands in the same relation to *Coryphodon fuscus* as *Herpetodryas carinatus* does to *H. fuscus*.

26. *HERPETOREAS SIEBOLDII*, Gthr.

Found by Messrs. v. Schlagintweit in Sikkim.

27. *GONYOSOMA FRENATUM* (*Herpetodryas frenatus*, Gray, Ann. & Mag.).

Found by Dr. Hooker in Khasia.

*28. *PSAMMODYNASTES PULVERULENTUS*, Boie (Gthr. Cat. Col. Sn. = *Dipsas ferruginea*, Cant. Proc. Zool. Soc. 1839, p. 53; Blyth, Journ. As. Soc. Beng.).

Found by Dr. Hooker in Khasia, by Capt. Sherwill and Messrs. v. Schlagintweit in Sikkim.

*29. *DENDROPHIS PICTA*, Gm. (Gthr. Cat. Col. Sn.).

Found by Dr. Hooker in Khasia.

30. *DIPSADOMORPHUS TRIGONATUS*, Schneid.

Found by Messrs. v. Schlagintweit in the Himalaya.

*31. *LYCODON AULICUS*, L. (Gthr. Cat. Col. Sn.).

Sent by Mr. Hodgson from Nepal; found by Messrs. v. Schlagintweit in the Himalaya (2400 feet).

32. *ELAPS UNIVIRGATUS*, Gthr. *l. c.*

Sent by Mr. Hodgson from Nepal.

33. *PARIAS MACULATA*, Gray, *l. c.* (Gthr. Cat. Col. Sn. p. 266, where the specimens are referred, by mistake, to *Trimesurus maculatus*).

Found by Dr. Hooker in Sikkim, and sent by Mr. Hodgson from Nepal.

34. *TRIGONOCEPHALUS AFFINIS*, Gray.

Found by Messrs. v. Schlagintweit in Tibet.

*35. *DABOIA ELEGANS*, Daud.

Found by Messrs. v. Schlagintweit in Kulu, Himalaya.

36. *TRIMESURUS BICOLOR*, Gray, *l. c.*

Found by Dr. Hooker in Khasia.

37. *TRIMESURUS ELEGANS*, Gray, *l. c.*

Found by Dr. Hooker in Khasia.

*38. *NAJA TRIPUDIANS*, Merr.

Found by Messrs. v. Schlagintweit in Sikkim. The specimens are uniform black, or with white cross-bands.

*39. *GONGYLOPHIS CONICUS*, Schneid.

Found by Messrs. v. Schlagintweit in Sikkim.

*40. *CLOTHONIA JOHNNII*, Gray.

Found by Messrs. v. Schlagintweit in Sikkim.

BATRACHIA.

1. *DICROGLOSSUS ADOLFI*, Gthr.

Found by Messrs. v. Schlagintweit in Kulu and Simla, Himalaya.

*2. *RANA TIGRINA*, Daud. (Gthr. Catal. Batr.).

Found by Mr. Hodgson in Nepal, by Messrs. v. Schlagintweit in Sikkim.

*3. *RANA VITTIGERA*, Wiegman.

Found by Messrs. v. Schlagintweit in Jamu, Himalaya.

4. *RANA LIEBIGII*, Gthr.

Found by Messrs. v. Schlagintweit in Sikkim, and sent by Mr. Hodgson from Nepal.

*5. *TOMOPTERNA STRIGATA*, Gthr.

Found by Messrs. v. Schlagintweit at Simla, Himalaya. This species has been described and figured in the Catal. Batr. Sal. p. 20. pl. 2. f. A, under the name of *Sphærotheca strigata*, from specimens in the British Museum, transmitted by Mr. Jerdon from Madras. When, however, during the printing of that catalogue, Sir Andrew Smith presented his collection of Reptiles to the British Museum, I found in it specimens of a Frog, identical with *Sphærotheca strigata*, labelled "*Tomopterna delalandii*, Cape," in Sir A. Smith's own hand. I did not venture to doubt such an authority for the reptiles of South Africa, and accordingly placed in the Appendix, p. 133, the new name as a synonym of the older. But the fact of the species now having been found by Messrs. v. Schlagintweit in the Himalaya, leaves us no other alternative than to suppose either that the species occurs in South Africa as well as in the East Indies (which is improbable in the highest degree), or that Sir A. Smith, who has collected reptiles from all parts of the globe, has mistaken the origin of his specimens. *Sphærotheca strigata* has, indeed, a great resemblance to *Tomopterna delalandii*; but it is evident, from a specimen of the latter which I have lately examined, that both differ in the form of the occiput, which is singularly convex and rounded in the former, whilst it is flat in the African species. This character is not sufficient to found a separate genus on it, and *Sphærotheca strigata*, therefore, is to be referred to *Tomopterna*.

6. *MEGALOPHRYS GIGAS*, Blyth, Journ. As. Soc. Beng. 1855, p. 299.

From Sikkim.

*7. *BUFO VULGARIS*, Laur.

Found by Messrs. v. Schlagintweit in Sikkim and Balti, Tibet.

*8. *BUFO MELANOSTICTUS*, Schneid. (Gthr. Catal. Batr.).

Found by Dr. Hooker and Messrs. v. Schlagintweit in Sikkim, by Mr. Hodgson in Nepal.

9. *BOMBINATOR* (?) *SIKKIMENSIS*, Blyth, *l. c.* p. 300.

From Sikkim.

*10. *POLYPEDATES MACULATUS*, Gray.

Found by Messrs. v. Schlagintweit in Sikkim.

11. *RHACOPHORUS MAXIMUS*, Gthr. *l. c.*

Found by Mr. Hodgson in Nepal, and by Messrs. v. Schlagintweit in Sikkim.

12. *ICHTHYOPHIS GLUTINOSUS*, L. (Gray, *l. c.*).

Found by Dr. Hooker in Khasia.

I am well aware that the results of our examination rest on facts which, for the present, depend on isolated, and therefore necessarily incomplete, observations; and cautiously as the conclusions may be drawn, yet they will undergo, perhaps, considerable alterations, when some future traveller or resident devotes as much attention to this part of zoology as has been given to other branches and to botany. With regard to *horizontal distribution*, the first question is, whether the Reptiles of the Khasia Hills show such a degree of identity with those of the Himalayas as to compel us to refer them to the same fauna; our knowledge of the Reptiles of High Assam being too scanty to admit of any conclusion as to that country. Now, two of the four species of Khasian Saurians are found also in the Himalayas and in Afghanistan, but nowhere else (*Calotes mariae* and *C. minor*). The order of Ophidians offers us more facts. Dr. J. Hooker was able to collect fifteen species of Snakes during a twelve months' sojourn in Khasia. He says* that they are very common there, whilst he found them rare and shy in most parts of the Himalaya†. In this, however, he appears to be right merely with regard to the number of individuals, the Himalaya showing an absolutely greater variety in generic and specific forms; and the difference mentioned by Dr. Hooker may depend on the influence of the climate which, in Khasia, is remarkable for the extensive rainfall, the annual average probably greatly exceeding 600 inches‡, whilst 136 only are recorded at Darjeeling. Three of these fifteen species (*Gonyosoma frenatum*, *Trimesurus elegans*, and *T. bicolor*) are known from Khasian specimens only; five are very distinct varieties and species, confined to Khasia and the Himalaya, and not descending below 4000 feet in the latter (*Simotes purpurascens*, var., *Xenodon macrophthalmus*, *Tropid. platyceps*, *Spilotes reticulatus*, *Psammod. pulverulentus*, var.). The remainder are found in the plains also, but they ascend the Khasia Hills, as well as the Himalayas, far enough to be admitted into their fauna. Thus we find in these facts evidence enough to show not only a great similarity, but a real unity of the two faunas, extending westwards along all the chains of the Himalayas; and there are not a few Khasian and Himalayan species which are found in Afghanistan.

When we come to examine the highest zone of the Himalaya in which reptiles can live, we find its Amphibio-fauna mixed with forms bearing the Palæarctic character. This appears to be not only the effect of a climate tempered by the great vertical elevation, but the natural consequence of the connexion between the northern Himalaya and Central Asia, or, in other words, a fact of the horizontal distri-

* Himal. Journ. ii. p. 301. Dr. Hooker is mistaken in believing that none of the Snakes collected by him in Khasia are venomous. *Trimesurus bicolor* and *T. elegans* were described from his collection. See Ann. & Mag. *l. c.* pp. 391, 392.

† Himal. Journ. ii. p. 49.

‡ Himal. Journ. ii. p. 283.

bution of animals. Forms belonging to the Palæarctic fauna extend from the north into the mountains, as the Indian species do from the south, and we may infer that there exists a great difference between the reptiles inhabiting the northern parts of the Himalayas and those found on its southern slope ;—a difference, which, for the present, is merely pointed at by *Phrynocephalus tickelii*, *Trigonocephalus affinis* and *Bufo vulgaris*, obtained by MM. von Schlagintweit in Tibet. The Himalayas, situated on the border between the Palæarctic and the Indian regions, offer the same variations in their fauna as the Sahara, which separates the Palæarctic region from the Æthiopian.

III. List of Himalayan Reptiles according to their Altitudinal Distribution, and Remarks on it.

Chelonia.

Feet above the level of the sea.

Emyda punctata 2100

Sauria.

Phrynocephalus tickelii 15,200—15,300

Hinulia indica 5800—15,250

Barycephalus sykesii 2500—15,250

Biancia nigra 11,200

Calotes minor 11,100

Tiliqua rufescens 0—9560

Tiaris elliotti 9200

Calotes tricarinatus 7100

— *mariae* 3900

— *versicolor* 0—3400

Gecko verus 0—1600

Uromastix griseus 0—1500

Ophidia.

Spilotes hodgsonii 15,200

Ablabes owenii 10,200

Clothonia johnii 0—9800

Trigonocephalus affinis 9000

Tropidonotus platyceps 4100—9000

Trachischium fuscum 7100—8500

Tropidonotus subminiatus 0—8200

Naja tripudians 0—8000

Herpetoreas sieboldii 7500

Trachischium obscuro-striatum 7400

Psammodynastes pulverulentus (var.) 0—7250

Brachyorrhos tenuiceps 7100

Xenodon macrophthalmus 4000—7100

Spilotes reticularis 4220—6900

Coryphodon carinatus 5700—7100

Dipsas trigonata 0—6200

Simotes purpurascens 0—6040